

## **Highlights of the New NFPA 72-2002 - Part 3**

**by Dean K. Wilson, P.E.**

The NFPA Standards Council has recently released NFPA 72-2002, *National Fire Alarm Code*, with an effective date of August 8, 2002. In the last two issues of *IMSA Journal*, I have began giving you my summary of the most significant changes to the *Code*. That summary continues in this issue, as well.

**Chapter 6**, “Protected Premises Fire Alarm Systems,” covers the material that appeared in Chapter 3 in the 1999 edition. The Committee has significantly simplified the Purpose statement. In addition, in the Annex the Committee has indicated that a fire alarm system need not provide for evacuation and relocation of occupants. This change recognizes that some fire alarm systems provide property protection only, without necessarily providing for life safety. (Please refer to Sections 6.2.1 and A.6.2.1.)

The Committee has deleted the requirement that software and firmware used in a fire alarm system control unit be specifically listed for use in that control unit. This requirement, appearing as Section 3-2.3.1 in the 1999 edition, had originally been added to reinforce the requirement for listing that appeared in 1999 Section 1-5.1.2. In this 2002 edition, Section 4.3.1 carries the requirement for listing of equipment. Presumably the testing/listing laboratories will continue to require listed fire alarm system control units to use only software and firmware submitted by the control unit manufacturer with the control unit. However, Authorities Having Jurisdiction may now need to guard more carefully against some third party proposing to install its own software or firmware into an existing fire alarm system control unit. Interestingly enough, it was just such an

occurrence that originally prompted the addition of the listing requirement for software and firmware in the 1996 edition. (Please refer to Section 6.2.2.)

The Committee has revised the description of “Class A” and “Class B” circuits to clarify that these circuit designations apply to supervisory circuits, as well as to alarm circuits. (Please refer to Section 6.4.2.1.)

In dealing with the installation of Class A circuits, the Committee has revised the *Exceptions* to the requirement that outgoing and return conductors not occupy the same cable assembly, enclosure, or raceway. The revision eliminates the *Exception* that permitted vertical runs to occupy the same 2-hour rated cable assembly or 2-hour rated enclosure. The separate routing requirement intended to address physical, mechanical damage to the cable. A fire rated assembly or enclosure does not mitigate such damage. (Please refer to Section 6.4.2.2.)

The Committee has added a requirement that a designer must include documentation that supports the choice of Class or Style of circuit in the material submitted to an Authority Having Jurisdiction for review and approval. (Please refer to Section 6.4.3.3.)

The Committee has added a new requirement in the portion of the *Code* that covers the performance of signaling line circuits. This new Section states that where digital communications are used, the inability to send or receive digital signals over a signaling line circuit shall be indicated by a trouble signal. (Please refer to Section 6.6.2.)

The Committee has revised Tables that cover the performance of initiating device circuits, signaling line circuits, and notification appliance circuits to increase the clarity of the requirements. (Please refer to Section Tables 6.5, 6.6.1, and 6.7.)

A revision the Committee has made to the Section that covers the interconnection of fire alarm system control units now permits the use of data communications over signaling line circuits

shared with other premises operating systems. This Section in the 1999 edition limited such a connection to digital data interfaces listed for fire alarm system use. (Please refer to Section 6.8.2.3(2).)

The Committee has further relaxed previous requirements by no longer requiring signal control and transport equipment to be listed for fire alarm service as long as it meets five specific criteria:

- the equipment must be installed to meet the performance criteria of the Authority

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- the equipment must have primary and secondary power
- programming and configuration must assure the 10 second actuation time
- the bandwidth is monitored to assure that all fire alarm communication takes place within 10 seconds, with failures indicated within 200 seconds
- failure of critical equipment must indicate at the master control unit within 200 seconds.

The Committee has included a requirement for a listed barrier gateway attached to or integral with each fire alarm system control unit to assure that other systems do not interfere with the fire alarm system. (Please refer to Sections 6.8.2.4.1 and 6.8.2.4.2.)

The Committee has revised the requirements for the interconnection of a protected premises fire alarm system and dwelling unit fire warning equipment. The revision removes the word “only” in the description of the purpose of the interconnection and clarifies the purpose of such interconnection. A new section also permits the protected premises fire alarm system to display the

status of dwelling unit smoke alarms at the protected premises fire alarm system control unit and annunciators. (Please refer to Sections 6.8.3.1 and 6.8.3.2.)

The Committee has deleted the requirement that supervisory initiating devices must be installed in accordance with the requirements of Chapter 5. (Please refer to Section after 6.8.5.1.2.)

The Committee has added a new Section to permit the use of latching supervisory signals. (Please refer to Section 6.8.5.7.5.)

The Committee has added a new Section covering circuits for addressable notification appliance circuits. One of the new requirements preserves the operation integrity of other notification zones if faults occur on the installation conductors of one circuit. A separate new requirement states that this requirement does not need to apply to riser conductors. (Please refer to Sections 6.8.6.3.1, 6.8.6.3.2, and 6.8.6.3.3.)

The Committee has added an *Exception* to the requirement for the use of the *American National Standard Audible Evacuation Signal*. This *Exception* permits the Authority Having Jurisdiction to approve the use of a consistent evacuation signaling scheme. (Please refer to Section 6.8.6.4.1 *Exception*.)

The Committee has rewritten the introductory Sections covering emergency voice/alarm communications systems to provide clarity in the application of these systems. (Please refer to Sections 6.9.1, 6.9.2, and 6.9.3.)

In the matter of survivability of the notification features of an emergency voice/alarm communications system used for partial, selective evacuation, or relocation, the Committee has revised the requirements to delete the reference to a 2-hour rated stairwell in a fully-sprinklered building. They have added a requirement to permit a performance alternative approved by the Authority Having Jurisdiction to the two other means of providing survivability: a 2-hour rated

cable or cable system and a 2-hour rated enclosure. (Please refer to Section 6.9.4.1, 6.9.4.2, and 6.9.4.3.)

The Committee has also revised the requirements for survivability of the means that interconnects the fire command center and the central control equipment, adding the same three choices given for survivability of the means of notification. They have also added an *Exception* for buildings protected by automatic sprinklers where the installer has placed interconnecting means inside metal raceways. (Please refer to Section 6.9.4.6.)

The Committee has extended the length of the alert tone that precedes an instruction voice message from 3 seconds to 6 seconds. (Please refer to Section 6.9.5.3(2).)

The Committee has also provided an *Exception* to permit the use of positive alarm sequence if approved by the Authority Having Jurisdiction. (Please refer to Section 6.9.5.3 *Exception No. 2*.)

The Committee has deleted the requirement for the installation of a speaker in each elevator car. They have also removed the mandatory requirement for installation of speakers in stairways. Instead, the requirement now begins with the words, “Where required.” (Please refer to Sections 6.9.7.2 and 6.9.7.3.)

The Committee has revised the requirements for multiple notification appliance circuits in the same notification zone to require simultaneous deactivation, as well as simultaneous activation. (Please refer to Section 6.9.8.2.)

The Committee has revised the requirement for the two-way telephone notification appliance in the fire command center to require that it sound a signal distinct from supervisory notification appliances, as well as alarm and trouble notification appliances. (Please refer to Section 6.9.9.6.)

The Committee now requires the operation of a disconnect switch to allow testing of a fire suppression releasing service fire alarm system without discharging the suppression agent to cause a supervisory signal, rather than a trouble signal. (Please refer to Section 6.11.4.)

In the Section covering fire safety functions, the Committee has combined the requirements contained in 1999 Section 1-5.4.1.1 with the requirements contained in 1999 Section 3.9.1. An interesting twist to these combined requirements include the words, "...The performance of automatic fire safety functions shall not interfere with power for lighting or for operating elevators." What makes this a twist is that one of the fire safety functions is elevator shutdown. (Please refer to Sections 6.15.2.1 and 6.15.4.)

Similar to the action they took regarding the interconnection of fire alarm system control units, a revision the Committee has made to the Section that covers the interconnection of a fire alarm system control unit with controlled electrical and mechanical systems now permits the use of data communications over signaling line circuits shared with other premises operating systems. This Section in the 1999 edition limited such a connection to digital data interfaces listed for fire alarm system use. The Committee has further relaxed previous requirements by no longer requiring the listing of fire safety control devices and gateways as compatible with the fire alarm system control unit. (Please refer to Section 6.15.2.6.)

The Committee has slightly revised the wording of the requirements for elevator recall to conform to the requirements of the most recent edition of ANSI/ASME A17.1, *Safety Code for Elevators and Escalators*. (Please refer to Section 6.15.3.10.)

The Committee has added a requirement to the Section covering elevator shutdown to require that the fire alarm control unit monitor the integrity of the initiating devices used to perform the shutdown function. (Please refer to Section 6.15.4.5.)

In the control of heating, ventilating, and air conditioning systems as part of a smoke control system, the Committee has added two new sections. One requires the provision of a Firefighter's Smoke Control Station. The other requires that normal HVAC operation or changes must not prevent the intended performance of the smoke control strategy. (Please refer to Sections 6.15.5.5 and 6.15.5.6.)

Next issue, I will continue to offer my summary of the important changes to NFPA 72-2002, *National Fire Alarm Code*, by presenting the changes to Chapters 7 and 8.

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